

## **REMARKS**

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-8 and 10-18 are now pending in this application.

### **Information Disclosure Statement**

Applicant gratefully acknowledges receipt of a signed and initialed copy of the PTO/SB/08 form submitted with an Information Disclosure Statement on April 2, 2008. However, WO 01/20959 was not initialed on the PTO/SB/08 form. Applicant respectfully submits that a copy of WO 01/20959 was provided with the Information Disclosure Statement and PTO/SB/08 form. Applicant respectfully requests that the Office provide a signed and fully initialed copy of the PTO/SB/08 form with the next Office correspondence.

### **Claim Objection**

Claim 1 is objected to for containing informalities. Applicant respectfully submits that the amendment to claim 1 renders this objection moot. Reconsideration and withdrawal of this objection is respectfully requested.

### **Rejections under 35 U.S.C. § 103**

Claims 1-8 and 13-18 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over WO 01/98723 to Groves *et al.* (hereafter “Groves”) in view of U.S. Patent No. 3,953,176 to Santala *et al.* (hereafter “Santala”). This rejection is respectfully traversed.

Groves discloses an exhaust gas cooler that includes an external tubular housing 20, tapered cap portions 25a and 25b, flange plates 26, and coolant passages or tubes 66. See page 8, line 23, to page 9, line 10, of Groves.

However, as noted on page 3 of the Office Action, Groves does not disclose or suggest a heat exchanger, “wherein the housing is in a shape of a bone that has two thick

portions and a relatively thin portion between the two thick portions when viewed in longitudinal section or in a shape that is approximated to a bone shape that has two thick portions and a relatively thin portion between the two thick portions,” as recited in claim 1. Nor does Groves disclose or suggest such a heat exchanger, “wherein the at least one heat exchanger element is located in the relatively thin portion,” as recited in claim 1.

Santala discloses a catalytic converter that includes a plurality of catalyst sections 12, a device container 16 with inlet and outlet openings 18 for an automotive exhaust gas. See col. 2, line 65, to col. 3, line 21, of Santala. Santala also discloses an embodiment of a catalytic converter 48 that includes double-tapered pleats 50 and flutings 52. See col. 6, lines 41-52, and Figures 7 and 8 of Santala. Furthermore, Santala discloses that the pleats 50 and flutings 52 form a heat-dissipating means 14a so that gases directed through the catalyst sections 12 transfer heat to the pleats 50 and flutings 52.

The Office argues on page 3 of the Office Action that Santala discloses a housing in the shape of a bone. However, the housing of Santala is for a catalytic converter, which is configured to process only a single medium, namely an automotive exhaust gas. Nor does Santala disclose or suggest at least one heat exchanging element that is located in a relatively thin portion of the housing, as recited in claim 1.

It would not have been obvious to one of ordinary skill in the art to modify the device of Groves by the teachings of Santala to provide the heat exchanger of claim 1. The Office argues in the Advisory Action dated August 28, 2008 that it would have been obvious to use the shape of the housing disclosed by Santala because this shape is well known in the art. However, Santala only discloses a housing shape for a catalytic converter. Santala does not demonstrate that the shape of such a housing is known in the art of a gas air cooler or heat exchanger. Thus, One of ordinary skill in the art would not have looked to the teachings of Santala when considering changes to the design of the device of Groves because of the differences between the catalytic converter of Santala and the devices of Groves and claim 1.

The catalytic converter of Santala does not include collecting vessels for a first medium and a housing configured to conduct a second medium. Instead, the catalytic converter of Santala is only designed to process a single automotive exhaust gas. Furthermore, Santala discloses a housing that is conducive to heat dissipation via pleats 50

and flutings 52, which is not conducive to the efficient heat transfer between two fluids in which heat retention is desired.

The Office argues on page 7 of the Office Action that the Office is merely using the teaching of Santala for the shape of a housing, not for any other teachings, such as teachings regarding a catalytic converter. However, the prior art must be considered in its entirety, including disclosures that teach away from the claims. See M.P.E.P. § 2141.02, Part VI. Therefore, it is not proper for to consider combining the teachings of Groves and Santala without considering the teachings of these references as a whole, including the teachings of Santala that regards its structure, functions, and use as a catalytic converter.

In light of the above, it would not have been obvious to one of ordinary skill in the art to combine the teachings of Groves and Santala to provide the heat exchanger of claim 1. Thus, one of ordinary skill in the art would have been left with only the teachings of Groves. Claim 1 is not unpatentable over Groves because Groves does not disclose or suggest all of the features of claim 1. Claims 2-8 and 13-18 depend from claim 1. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 17 and 18 depend from claim 1 and are allowable over Groves and Santala for at least the reasons discussed above. Claims 17 and 18 further recite, among other things, that the heat exchanger is configured so that the second medium has a laminar flow or flows in a laminar fashion. Groves discloses that the passages or tubes 66 are formed by plates 49, 50 that form a criss-cross pattern of diagonal grooves or ribs 62, 63. Page 10, lines 21-27. Groves teaches that the ribs or grooves 62, 63 increase the turbulence of gas inside and outside of the tube 66, which benefits the performance of the exhaust gas cooler. See page 11, lines 1-4.

Santala discloses that catalyst sections 12 include catalyst strip materials 28 that form obliquely intersecting passages 34 with continuously varying cross-sections. See col. 4, line 65, to col. 5, line 11, of Santala. Santala discloses that the continuously varying cross-sections of the passages 34 provide turbulence to prevent or avoid laminar flow of exhaust gases through the catalyst sections, a condition in which some of the exhaust gas may not come into contact with the catalyst in the sections 12. See col. 1, lines 53-65; col. 5, lines 8-

21, of Santala. Therefore, both Groves and Santala, alone or in combination, teach against configurations that provide laminar flow of a medium.

The Office argues on pages 5 and 7 of the Office Action that claims 17 and 18 merely recite functional features that do not further limit the claims in terms of structure. Applicant respectfully disagrees and submits that claims 17 and 18 recite structures that provide a laminar flow, as recited in claims 17 and 18. The Office further argues on pages 7-8 of the Office Action that it would have been obvious to modify the flow of a fluid through a device to provide laminar flow instead of turbulent flow. However, the teachings of Groves and Santala do not support the Office's argument and the Office provides no other evidence in the art to support this argument.

Claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Groves and Santala, and further in view of U.S. Pub. No. 2003/0010479 to Hayashi *et al.* (hereafter "Hayashi"). This rejection is respectfully traversed. Hayashi does not remedy the deficiencies of Groves and Santala discussed above in regard to independent claim 1, from which claim 10 depends. Withdrawal of this rejection is respectfully requested.

Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Groves and Santala, and further in view of U.S. Patent No. 6,659,170 to Kale (hereafter "Kale"). This rejection is respectfully traversed. Kale does not remedy the deficiencies of Groves and Santala discussed above in regard to independent claim 1, from which claim 11 depends. Withdrawal of this rejection is respectfully requested.

Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Groves and Santala, and further in view of FR 2 605 685 to Gautelli *et al.* (hereafter "Gautelli"). This rejection is respectfully traversed. Gautelli does not remedy the deficiencies of Groves and Santala discussed above in regard to independent claim 1, from which claim 12 depends. Withdrawal of this rejection is respectfully requested.

### CONCLUSION

Applicant submits that the present application is now in condition for allowance.  
Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By P.D.S.

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